Prevalence of breastfeeding and nutritional of pre term children assisted in reference maternity

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RESEARCH

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Prevalência do aleitamento materno e estado nutricional de crianças pré-termo assistidas no ambulatório de uma maternidade de referência

Prevalencia de lactancia y estado nutricional de pre termos asistidos en un ambulatorio de una maternidad de referencia

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ABSTRACT

Objective: To know the prevalence of breastfeeding and the nutritional status of pre term babies assisted at a nutritionist's office. **Method:** Cross-sectional study with sample of 52 children. The data were entered and processed in the SPSS software, 17.0. The Chi-square and Fischer's exact tests were used for association analysis. **Results**: 46% of the babies under six months were receiving exclusive breastfeeding; 38.6% were being breastfed and 15.4% had been weaned. As for the nutritional status, the indexes for weight/age and height/age showed that most of the babies were eutrophic, 84% and 92%, respectively; the weight/height ratio points to overweight and obesity risk (56%), in contrast with underweight (22%); the BMI/age ratio points to overweight and obesity risk (52%) and underweight (20%). **Conclusion**: The results show higher prevalence of exclusive breastfeeding when compared to other studies, which is probably related to actions taken towards this service. **Descriptors:** Pre term, Nutritional Status, Breastfeeding.

RESUMO

Objetivo: Conhecer a prevalência do aleitamento materno e o estado nutricional de crianças pré-termo assistidas em um ambulatório de nutrição **Método:** Estudo transversal. Participaram 52 crianças. Os dados foram digitados e processados no SPSS, versão 17.0. Para análise de associação utilizou-se o Teste do Qui-quadrado e o Teste exato de Fischer **Resultados:** 46% das crianças menores de seis meses estavam em aleitamento materno exclusivo; 38,6 % em aleitamento materno e 15,4% não mamavam mais. Quanto ao estado nutricional, os índices peso/idade e altura/idade, mostraram que a maioria dos bebês são eutróficos, 84% e 92% respectivamente; a relação peso/estatura evidenciou risco de sobrepeso e obesidade (56%), contrastando com a magreza (22%); a relação IMC/idade apresentou risco de sobrepeso e obesidade (52%) e magreza (20%). **Conclusão:** Os resultados revelaram um perfil de aleitamento materno exclusivo superior em relação aos demais estudos o que provavelmente está relacionado as ações realizadas neste serviço.**Descritores:** Pré-termo, Estado nutricional, Aleitamento materno.

RESUMEN

Objetivo: Determinar la prevalencia de la lactancia materna y el estado nutricional de los recién nacidos prematuros atendidos en una consulta externa de nutrición. **Método:** Estudio transversal con 52 niños que asisten de hasta 18 meses en un control médico nutricional, que se encuentra en la ciudad de Teresina-PI de la maternidad estado de alta complejidad. Los datos fueron introducidos y procesados con el programa SPSS, versión 17.0. Para el análisis de asociación se utilizó la Chi-cuadrado y resultados de la prueba exacta de Fisher **Resultados:** 46% de los niños menores de seis meses fueron amamantados exclusivamente, 38,6% amamantaron y 15.4% no estaban succionando más. En cuanto al estado nutricional, peso / edad y talla / edad, mostró que la mayoría de los bebés son eutróficos, 84% y 92% respectivamente, y la relación peso / talla mostró riesgo de sobrepeso y obesidad (56%), en contraste con la delgadez (22%), la relación IMC / indicador de riesgo edad del sobrepeso y la obesidad (52%) y la emaciación (20%). **Conclusión:** Los resultados revelaron un mayor perfil de la lactancia exclusiva en comparación con otros estudios que probablemente está relacionado con las acciones que se realizan este servicio. **Descriptores:** La eyaculación, El estado nutricional, La lactancia materna.

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INTRODUCTION

According to the World Health Organization (WHO), a child is considered as premature if they born of a pregnancy with time less than 37 weeks, counted from the last menstrual period.[1] Prematurity is taken as the main cause of morbidity and neonatal mortality, being responsible for 75% to 95% of all neonatal deaths not associated with congenital malformations. The newly born survivors, up to 15% exhibit significant sequelae, such as changes of psychomotor development, chronic respiratory diseases, predisposition to infectious diseases and ophthalmic disorders. [2]

The incidence of prematurity varies according to the characteristics of the population studied. The data from the Information System on Live Births (SINASC) of the Ministry of Health show that the percentage of preterm live births in 2010 was 7.1%, which corresponds to 204,299 live births to mothers with less than 37 weeks of gestation. In the state of Piaui, Brazil, the number of live births with less than 37 weeks of gestation was 10% in 2011. Regarding the percentage of infants with low birth weight (< 2500g), the data show that the numbers come to 7.9% among the live births in the same year. [3]

Breast milk is universally accepted as the best food for babies both of high risk, as usual risk, by providing economic, immunological, nutritional, endocrine and emotional advantages. It is considered the ideal feeding for the preterm newborns (PN), already that in the first four weeks after birth, this milk contains a higher concentration of oxygen, proteins with immune function, medium-chain fatty acids, total lipids, vitamins A, D and E, calcium, sodium and energy; more than the mother's milk for full-term infants.[4]

Regarding the assistance provided to premature children progress is noted with the development of new technologies, special methods of care and medicines to achieve growth and proper development. An example of such methods is the Kangaroo Mother Method, which is a neonatal care face care for the preterm newborns, which consists in placing the baby in skin-to-skin contact with the mother. [5]

The 1st step, performed in Neonatal Intensive Care Units (NICU), is the period of adaptation and training, where the family receives guidelines regarding the care to be carried out with the children, and the mother receives guidance as to personal care, and the kangaroo position may begin to be performed depends on the clinical condition of the baby. In the 2nd step, the newborn is found stabilized and can stay with continuous monitoring by their mother in a room where the kangaroo position will be performed as long as possible. The 3rd step consists in outpatient clinics in which there is continuity care to preterm newborns of low weight after hospital discharge. [6]

It is important to emphasize that the care to newborns is not limited to the recovery of the biological body, but extends to the attention to their psychobiological and social needs, which will be cared for by their family. Thus, thinking in comprehensive care of the newborn also implies the attention paid to the family as a care unit.[7] Considering the above, this study aims to determine the prevalence of breastfeeding and nutritional status of premature infants in the assisted outpatient nutrition of a maternity hospital referral of a capital, where are referred to premature infants after hospital discharge, the only maternity hospital considered the reference for high-risk pregnant women and children in the state.

METHODOLOGY

Cross-sectional quantitative Study. The study was conducted in an office of nutritional counseling, situated in the city of Teresina-PI of a High Complexity State Maternity Hospital, [8] it has the title of Child-Friendly Hospital, reference in the care for pregnant woman and high risk children, in addition to working with the Kangaroo Methodology since 2004. The sample studied was 52 children treated, up to 18 months of age. It was a non-probabilistic sample on demand, based on interviews of all women with children treated at this outpatient clinic within a one-month period. Data collection occurred from January to March 2012. The interviews were conducted in the space for the implementation of these consultations in the waiting room.

The inclusion criteria for participation in the study were children who are born with gestational age (GA) < 37 weeks, who accepted to participate in the study and signed the Informed Consent Form - IC. Regarding the exclusion criteria: mothers of newborn infants (NBs) who refused to sign the informed consent form, NBs who had a GA > 37 weeks, and who had a diagnosis of other pathologies related to: neurological problems, heart diseases, among others.

The data was collected using a structured form, especially developed for this research, applied by the researchers responsible for carrying out the work. The form was composed of 32 questions relating to: mother's age, schooling, marital status, family income, employment outside of the home, type of delivery, gestational age, number of prior pregnancies, parity, number of abortions, number of living children, pathologies and/or complications linked to this pregnancy, completion of prenatal care. As For the newborn data were collected on: gender, date of birth, birth weight, current weight, height, time of permanence in the Neonatal ICU and Intermediate Care Unit (ICU), carrying out consultation post-discharge, current supply, use of standard and pouch bottle.

The classification of breastfeeding patterns followed the recommendations of the World Health Organization (2001),[9] by adopting the following breastfeeding categories:

1- Exclusive breastfeeding (EBF): the child is receiving only breast milk directly from the breast or extracted and no other liquid or solid food, with the exception of drops or syrups of vitamins, minerals and/or medicines;

2- Predominant breastfeeding (PBF): the child is receiving, in addition to breast milk, water or water-based drinks such as fruit juices and teas;

3- Breastfeeding (BF): the child is fed with breast milk regardless of consumption of other liquids or solid foods/semi-solids, including the non-human milk.

The anthropometric data were collected from the outlet of weight and height according to the techniques proposed by WHO and adopted by the System of Food and Nutritional Surveillance (SISVAN). To this end, a digital scale with a capacity of 150 kg was used. As for height measurement, we used a wooden anthropometer with tape measure in imperial measurement (mm inch). To assess the nutritional status of pre-terms were used measures that followed the parameters regulated by SISVAN/MS for each age range, [10] having as standard of evaluation the curves of the WHO (World Health Organization, 2006), adopted by the Ministry of Health, present in the Child Health Booklet.[11]

For monitoring, the growth of the pre-term must be used growth curves appropriate and well prepared, but that have limitations, because there are few curves that contemplate the growth of pre-term. Thus the corrected age was calculated, based on the Ministry of Health Child Health Booklet used for term infants born after 40 weeks

of gestational age for placing data in the curves, the birth is considered when the child reaches 40 weeks of post-conception age. [12]

Thus, the pre-term newborns with 28 weeks of gestational age, after three months of birth (12 weeks) will have their measurements noted at 40 weeks, similar to a term NB [12]. For children under five years the anthropometric indices used for the diagnosis of nutritional status are Weight/Age; Height/Age; Weight/Height and BMI/Age.[10]

The relationship between the dependent variable, breastfeeding, and the independent variables represented by the results of the nutritional assessment of children (low weight, healthy weight, overweight and obesity), as well as with the socio-demographic factors (income, education of the mother etc.) were analyzed by the Chi-square Test and Fisher's exact Test, with a significance level of 5%. The measure of association used was an odds ratio. Data were entered and processed with the program SPSS, version 13.0. The charts and tables were created with the aid of Excel 2007.

The research project was approved by the Ethics Committee (CEP) of the University Center for Health, Humanities and Technology of Piauí - UNINOVAFAPI, filed under the number: 0483.0.043.000 -11 And by Ethics and Research Committee of the Hospital in question, as it provides for the resolution 196/96 of the National Health Council. The participation of the mothers gave voluntarily by signing the Informed Consent Form (ICF). There were only two refusals to participate in this study.

RESULTS AND DISCUSSION

The study group was composed of 52 premature children, whose socio-demographic variables can be observed in Table 1. Among the participants, 23,50% were adolescents and 19,20% had age greater than 35 years of age. The majority (59.62%) had schooling higher than the elementary school; 86.54% not worked outside and 8.76% had income less than two minimum wages. Regarding marital status, 25% were unmarried.

Table 1. Socio-demographic profile of mothers of premature children assisted in a nutrition clinic in a reference maternity hospital in Teresina, Piauí, Brazil 2012

		No.	%
Age Group	< 20	11	23.50
	20 - 25	10	21.20
	25 - 35	17	36.10
	> = 35	9	19.20
Schooling	< = elementary school	21	40.38
	> elementary school	31	59.62
Marital status	single	13	25.0
	married/consensual union	39	75.0
Family Income (MW)	< 2	42	80.76
	2 - 5	10	19.24
Works outside of home	yes	7	13.46
	no	45	86.54

Source: authors' data

According to gestational age, it was observed that 71.2% of mothers had their babies at 33 to 36 weeks. Regarding the number of children, 96.2% had 1 to 3 children. In terms of birth weight, all the children had low birth weight (< 2500g), however, 59.6% were born with weight in the range of 1500g to 2,500g and 32.5 below 1500g. Regarding the existence of pathologies, 42.3% said they had any pathology associated with pregnancy. In the case of the completion of the prenatal care, 96.2% did so. Regarding the number of consultations, 73.1% had fewer than 6 visits. Regarding the child's gender, 51.9% were female; according to age in months, 50% were from 0 to 6 months. These values can be observed in Table 2.

Table 2. Distribution (%) of maternal characteristics and assisted premature infants in a reference maternity hospital in Teresina, PI, Brazil, 2012

	No.	%
Gestational Age		
< 30 Weeks	4	7.7
30-32 weeks	10	19.2
33-36 weeks	37	71.2
Up to 37 weeks	1	1.9
No. of Children		
< 1 child	0	0
1-3 children	50	96.2
3-5 children	2	3.8
> 5 Children	0	0
Pathologies		
Yes	22	42.3
no	30	57.7
Performed prenatal care		
Yes	50	96.2
no	2	3.8
No. of consultations		
< 6 consultations	38	73.1
> 6 consultations	14	26.9
Birth Weight		
< 1000 Kg	2	3.9
1000-1500 Kg	17	32.6
1500-2500 Kg	31	59.6
> 2500 Kg	2	3.9
Gender		
Male	25	48.1
Female	27	51.9
The child's Age (months)		
0-6	26	50.0
6-12	19	36.6
> 12	7	13.4

Source: authors' data

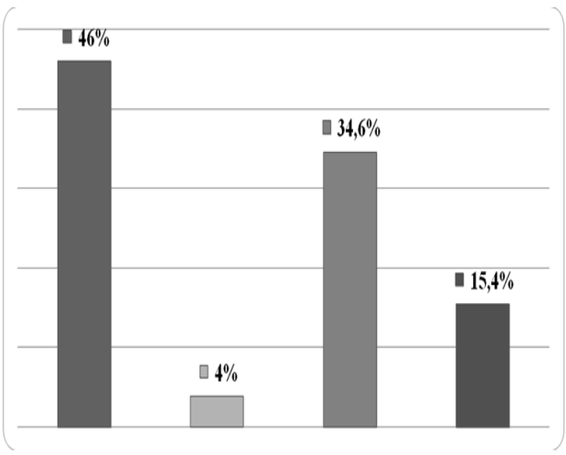

Figure 1- Type of feeding in children under 6 months of both genders assisted in a nutrition clinic in a reference maternity hospital in Teresina – Piauí, 2012.

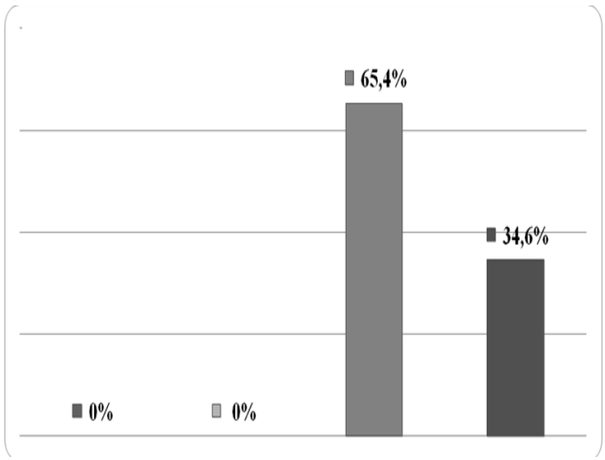

Figure 2- Type of breastfeeding in children 6-18 months of both genders assisted in a nutritional clinic in a reference maternity hospital in Teresina – Piauí, Brazil, 2012.

Regarding the type of breastfeeding of the assisted children, 46% were in exclusive breastfeeding, 4% in predominant breastfeeding and 34.6% were already receiving other foods in addition to breast milk. It should be noted that only 15.4% of the children were fully weaned. In above the age of six months 65.4% of the children still remained in breastfeeding. In this study, in particular was not found statistically significant association between the socio-demographic factors and maternal characteristics and child with the practice of exclusive breastfeeding.

As for the assessment of nutritional status related to age corrected, using the WHO curves, the data are presented in Figure 3. With respect to the weight / age and height / age, it was observed that most are classified as normal, 84% and 92% respectively. However, with respect to this index we observed a percentage of 14% of underweight and 2% higher weight. Regarding the age/height, it has been identified that 8% had low stature. Regarding the weight/stature, it showed a growth compared to previous indices, both nutritional deficit as overweight, revealing 22% of underweight and 56% risk of overweight and obesity. This fact is also observed when analyzing the index BMI / age, observing values very close to

the weight / height index, totaling 20% of underweight and 52% risk of overweight and obesity.

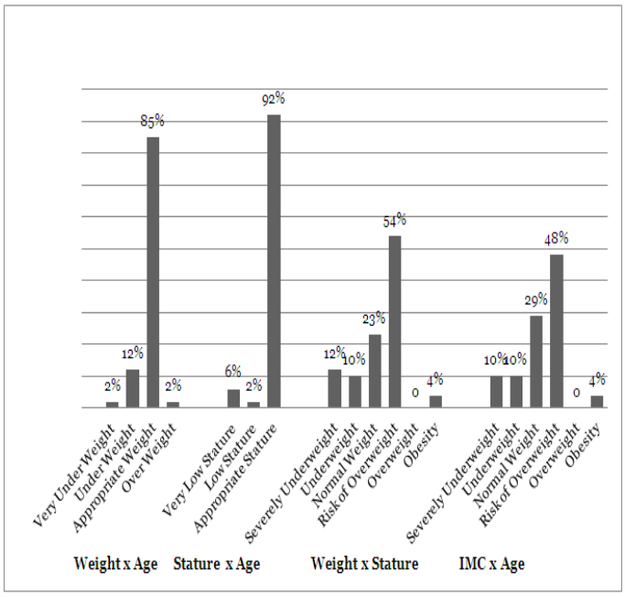

Figure 3 – Nutritional status according to weight/age, stature/acts, weight/stature, BMI/acts of premature children assisted in the nutritional clinic of the maternity of reference in Teresina – Piauí, Brazil, 2012.

This study constitutes the first diagnosis of the situation of breastfeeding and nutritional status of preterm children assisted in a nutritional clinic in a reference maternity hospital in which operates the only state service intended to monitor premature and high-risk children, as recommended by the Ministry of Health for the Kangaroo Methodology implanted at the maternity hospital. It is worth pointing out that it is also a Baby-Friendly Hospital. The fact that it is a non-probabilistic sample could undermine the validity of the present study, however all the mothers that were during the completion of data collection were invited to participate, and that only 3.7% refused to be part of the research, which shows that 96.3% of the sample was achieved.

Regarding the socio-demographic indicators, the findings of this study revealed that it is a predominant group of low-income families, with the level of schooling in which a little more than half has above the elementary school and a minority is inserted in the labor market. The majority of the sample had a stable union and were concentrated in the age range of 20 to 35 years, although there is a considerable percentage of adolescents and women above 35 years of age, those considered at risk for the occurrence of preterm births.

In a study conducted in the city of Maringa - PR, Brazil, with their objective of analyzing the influence of socio demographic profile in preterms observed that mothers from 25 to 35 years of age accounted for 8.5%. The maternal age is one of the biological factors of prominence for the characterization of risk newborns or preterm, being the age groups below 20 years and above 34 years, considered risk factors associated with low birth weight. Regarding to marital status, there was a higher frequency of married mothers (6.4%).[13] Another study conducted in the city of Juiz de Fora, MG, Brazil, in a Primary Healthcare Unit, the mothers of preterms revealed that 72.5% of the mothers had incomplete elementary education. [14]

With respect to data and obstetric characteristics of children the results were shown to be similar to other studies, such as the fact that the majority of women have participated in all the consultations during the prenatal care, and more than 50% of mothers do not possess pathologies associated with gestational period, there was a predominance of female preterms. As in this study, conducted in the city of Recife - PE, Brazil, in Neonatal Intensive care Unit there was no predominance of pre-terms of females (54.3%), with a gestational age greater than 30 weeks (56.4%). [15] The comparisons of the data achieved from AME of institution under study in relation to the studies carried out in other institutions demonstrate that the results found here if show superior to other services. As can be observed in a study conducted in Juiz de Fora, MG, Brazil, in a Primary Healthcare Unit, which at the time of

interview no child was in AME, only 2% was supplemented breastfeeding, 39.2% in mixed breastfeeding and 58.8% in artificial breastfeeding. [14]

In another study carried out in São Paulo, in the Neonatal Intensive Care Unit, we observed percentage well below the present study, whereas only 3.3% of preterm infants were exclusively breastfed at discharge. [16] Similar Situation was found in another study, conducted in Uberlandia, MG, Brazil in the Neonatology service and Milk Bank, in which it was observed percentage well below, such as the 2.2% of AME in preterms. [17]

Breastfeeding preterms is a difficult task, as well as the many other barriers pro-breastfeeding in hospitals, have contributed to decrease the rate of breastfeeding among the successful preterms. The obstacles associated with this are usually related to the high neonatal risk services. These preterms often are weaned before even leaving the high risk nursery. Accompanying the hospitalization of newborn, many mothers realize that breastfeeding is one of the only ways to contribute to the recovery of the baby. However, only few of these mothers can start and continue adequate milk production without the help of a health professional and without family support. [18]

It is worth pointing out the importance of Kangaroo Methodology adopted at the present study as a strategy for the improvement of the indicators of exclusive breastfeeding, as well as the fact that if you treat a Baby-Friendly Hospital Initiative in which all the routines and procedures are geared to the promotion, protection and support of breastfeeding by favoring the implementation of this practice and, consequently, the indicators of AME. This fact may be evidenced in a survey conducted in 5 hospitals child friendly of Teresina, among them the motherhood in which this study was conducted, in which the median duration of exclusive breastfeeding was 98 days. [19]

The assessment of the nutritional status of children has revealed differences in the results when comparing the anthropometric indices defined by WHO (2006) and used by the Ministry of Health in the current Child Health Booklet.[11]

When analyzing the weight / age and height / age is observed that most children meet the nutritional status regarded as appropriate. However, with respect to the indices that correlate weight and length of the child, as the weight / height, and BMI / age we observe significant percentage of underweight and overweight. According to the Ministry of Health, these indices express the harmony between the dimensions of body mass and height, and both are very sensitive to identify both the weight loss of the child as the excess of weight, which confirms the results of this study .[10]

However no studies along the preterm establishing comparisons between the different growth curves, in particular the curve of the WHO (2006), parameter currently used in the child's booklet were found. In using the term children, were observed frequencies of malnutrition for W/A in 4.2%, 9.5% and 3.2%, for S/A in 2.1%, 2.1% and 4.2% and for W/S, at 2.1%, 4.2% and 1.0% of children, respectively for the curves *Centers for Disease Control and Prevention* -NCHS (1977), *Control and Prevention* - CDC (2000) and WHO (2006). Regarding overweight, the frequencies were 4.2%, 3.2% and 5.3%, respectively, for the NCHS (1977), CDC (2000) and WHO (2006) curves. [20]

In another study performed in Florianapolis-SC, Brazil also with children born at term, there were no differences in percentage found among the different curves. The monitoring showed that, by the curve of the CDC/NCHS, 11.05% of the children showed deficits in weight, 25.12% exhibited stunting and 32.16% had low weight. According to the curve of the WHO,± 14.57% exhibit deficits in weight, 33,66% and 30,15% stature deficit with low weight, evidencing the

differences found between the different anthropometric indices as the curve used, with a tendency of higher percentages when it uses the WHO curve (2006). [21]

The new WHO curves allow an efficient monitoring of changes in the growth in infancy, capable of detecting more early, in relation to the NCHS curves (6- 8), the low stature, the low weight and excessive weight gain. The adoption of these new curves can promote an improvement of public policies for a better evaluation of the growth of children, regardless of ethnicity, socioeconomic conditions and type of diet.[22]

It is worth noting the concern, which has occurred in recent years in relation to the high rates of weight gain among premature infants that may be the result of early administration and more rapid increase of amino acids and lipids in parenteral nutrition of the preterm newborns. Allied to this is often that the mothers of these children provide foods above the recommended quantities for them to gain weight faster. Therefore, it is not uncommon for these children to be overweight and obese, with all the negative consequences that may arise over the medium and long term. [12]

CONCLUSION

The results found in this study allowed reveal an index of breastfeeding, in particular, of exclusive breastfeeding among preterm children, superior to other studies surveyed. It is likely that the fact that it is a Baby Friendly Hospital, owning a milk bank with actions aimed at promoting, protecting and supporting breastfeeding, as well as working with the Kangaroo Method in assisting premature infants have positive influence in the breastfeeding profile found.

The nutritional status assessment of children is very important to demonstrate the weight gain of the preterm during their growth. The study showed a reasonable percentage of children with an overweight risk, when compared to underweight, in relation to indices of weight/height and BMI/age, currently used in the child health booklet. This fact attests to the need for further studies using this criterion in the growth of children preterms to establish appropriate comparisons.

It is worth noting that breastfeeding a preterm infant is still a challenge but it is feasible provided there is appropriate help and support, especially by health professionals. The mothers of preterms need more information and support on the importance of breastfeeding so that they can choose and make decisions on their children's nutrition.

Therefore, the inclusion of new instruments in work process can assist in reaching the desired goals such as the monitoring of these preterms, which diminish the suffering and the conflicts of the nursing mothers, showing that breastfeeding has its importance for the improvement of the quality of life of premature children.

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